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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/680,265	10/05/2000	Frank Brouwer	2380-229	8852

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EXAMINER

MEW, KEVIN D

ART UNIT

PAPER NUMBER

2664

DATE MAILED: 01/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/680,265	Applicant(s) BROUWER, FRANK	
	Examiner Kevin Mew	Art Unit 2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8/6/2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-16, 18-32 and 34-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-4, 8-11, 13-16, 18-20, 24-27, 29-32, 34-36, 40-43 and 45-48 is/are rejected.
- 7) ☒ Claim(s) 5-7, 12, 21-23, 28, 37-39, 44 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>Z</u> . | 6) <input type="checkbox"/> Other: _____ |

Final Action

Response to Amendment

1. Applicant's arguments filed on August 6, 2004 regarding claims 2-11, 13-16, 18-27, 29-32, 34-43, 45-48 have been fully considered and claims 2-16, 18-32, 34-48 are currently pending. Claims 1, 17, and 33 have been cancelled by the applicant.

2. Acknowledgement is made of the amended claims 5-7, 21-23, 37-39 regarding the rejections of 35 U.S.C. 112, second paragraph described in the previous Office Action. The rejections of claims 5-7, 21-23, 37-39 under 35 U.S.C. 112, second paragraph are now withdrawn.

Claim Objections

3. Claims 6-7, 22-23, 38-39 are objected to because of the following informalities:

the symbols "N" and " N_{sf} " have not been defined in claims 6, 22, and 38.

the symbol " W_{sf} " has been defined but is not being used in the equation of claims 6, 22, and 38.

the symbol " Cap_{new} " has not been defined in claims 7, 23, and 39 and it is unclear as to what the term "load" refers to in claims 7, 23, and 39.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-4, 8-11, 16, 18-20, 24-27, 32, 34-36, 40-43 & 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johansson (WO 00/49816) in view of Nadgauda et al. (USP 6,011,800).

Regarding claims 2, 18, 34, Johansson discloses a radio access network (CDMA System, see page 2, line 5) for comprising a base station node (Base Transceiver Station BTS, see page 2, line 6) to perform the method of operating a radio access network (see Fig. 2) which determines a number of connections for each of plural spreading factors that can be added to the base station node (allocating a different number of codes for each spreading factor in a BTS, see page 2, lines 7-22 and Fig. 1; spreading factors SF=1, SF=2, SF=4, SF=8, etc.), and which sends to a radio network controller (RNC) node (see page 5, lines 1-4) a capacity indication (the number of codes to be allowed to a spreading factor) including a capacity value based on the determined number of connections (determining a number of codes to be allocated to each spreading factor, see page 2, lines 4-22), wherein the capacity indication includes a vacancy capacity value for each of plural spreading factors (a number of codes to be allowed for each spreading factor, see page 2, lines 4-22 and Fig. 1; note that the number of codes to allowed for each spreading factor is interpreted as a vacancy capacity value).

Johansson does not explicitly show each code will correspond to a capacity resource. However, Nadgauda discloses a CDMA system in which the resource size is determined by the number of codes allocated to a communication unit (see col. 2, lines 66-67 and col. 3, lines 1-26). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the code allocation for each spreading factor in a CDMA system of Johansson with the teaching of the determining the resource size by the number of codes allocated to a communication unit such that the code allocation method of Johansson is used to determine the resource size. The motivation to do so is to allow different codes to support different resource sizes because it is desirable to support a plurality of resource sizes so that the capabilities and cost of the subscriber units may be scaled in accordance with the throughput requirements of the user.

Regarding claims 3, 19, 35, Johansson discloses the apparatus of claims 2, 18, 34, respectively, wherein the capacity indication (the number of codes to be allowed to a spreading factor) includes a vacancy capacity value (determining a number of codes to be allocated to each spreading factor) for each of plural spreading factors (see page 2, lines 4-22 and Fig. 1; note that the number of codes to allowed for each spreading factor is interpreted as a vacancy capacity value).

Regarding claim 4, 20, 36, Johansson discloses a radio access network (CDMA System, see page 2, line 5) for comprising a base station node (Base Transceiver Station BTS, see page 2, line 6) to perform the method of operating a radio access network (see Fig. 2) which determines

a number of connections for each of plural spreading factors that can be added to the base station node (allocating a different number of codes for each spreading factor in a BTS, see page 2, lines 7-22 and Fig. 1; spreading factors SF=1, SF=2, SF=4, SF=8, etc.), and which sends to a radio network controller (RNC) node (see page 5, lines 1-4) a capacity indication (the number of codes to be allowed to a spreading factor) including a capacity value based on the determined number of connections (determining a number of codes to be allocated to each spreading factor, see page 2, lines 4-22). Johan further discloses the capacity indication includes a vacancy capacity value for each of plural spreading factors (a number of codes to be allowed for each spreading factor, see page 2, lines 4-22 and Fig. 1; note that the number of codes to allowed for each spreading factor is interpreted as a vacancy capacity value).

Johansson does not explicitly show the capacity indication is a total capacity value calculated using a vacancy value for each of plural spreading factors.

However, Nadgauda discloses a CDMA system in which the resource size is determined by the number of codes allocated to a communication unit (see col. 2, lines 66-67 and col. 3, lines 1-26). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the code allocation for each spreading factor in a CDMA system of Johansson with the teaching of the determining the resource size by the number of codes allocated to a communication unit such that the total resource size value is the sum of all the resource sizes of all the communication units wherein the resource size of each communication unit is determined by the number of codes being allocated to it. The motivation to do so is to report a total calculated resource size value based on a combination of different

resource sizes so that all of the resource sizes to be supported by the communication system is specified beforehand for the purpose of planning and designing the communication system.

Regarding claims 8, 24, 40, Johansson discloses the apparatus of claims 2, 18, 34, respectively, wherein the base station tracks usage of base station resources for determining the number of connections that can be added to the base station node (see page 2, lines 4-22).

Regarding claims 9, 25, 41, Johansson discloses the apparatus of claims 2, 18, 34, respectively, wherein the capacity indication reports the determined number for a particular spreading factor utilized at the base station node (see page 2, lines 4-37).

Regarding claims 10, 26, 42, Johansson and Nadgauda disclose all the aspects of the claimed invention set forth in the rejection of claims 2, 18, 34, respectively. Johansson further discloses the apparatus of claims 2, 18, 34, respectively, wherein the capacity indication reports the determined number separately for downlink transmissions relative to the base station node (see page 2, lines 4-22). Johansson does not explicitly show the capacity indication reports the determined number separately for uplink transmissions relative to the base station node. However, Nadgauda discloses resource size determination is performed by reporting the resource size requirement to the communication system (uplink, see col. 3, lines 42-59). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the resource size determination by spreading codes of Johansson and Nadgauda with the teaching of Nadgauda such that the capacity indication reports the resource size in the uplink

direction relative to the base station. The motivation to do so is to provide an efficient resource management in a communication system supporting a plurality of mobile stations that may have varying resource size requirements.

Regarding claims 11, 27, 43, Johansson and Nadgauda disclose all the aspects of the claimed invention set forth in the rejection of claims 2, 18, 34, respectively. Johansson further discloses wherein the capacity indication reports the determined number based on a combination of free connections for each of plural spreading factors (see page 2, lines 21-22), and using consumption laws appropriate for each of the spreading factors (see page 2, lines 21-22).

Regarding claims 16, 32, 48, Johansson and Nadgauda discloses all the aspects of the claimed invention set forth in the rejection of claims 2, 18, 34, respectively. Johansson further discloses the base station node has plural devices (the base transceiver station is wirelessly connected to the mobile stations, see Fig. 2), except fails to show the capacity determination is based on a number of free resources per device. However, Nadgauda discloses performing resource determination based on the available resources per device (see col. 7, lines 45-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the resource size determination by spreading codes of Johansson and Nadgauda with the teaching determining the available resource sizes of the communication units in the system. The motivation to do so is to maximize the total number of available resources by keeping the system from wasting excess capability and denying service to communication units where there are sufficient resources to support them.

5. Claims 13-15, 29-31, 45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johansson in view of Nadgauda et al., and in further view of the admitted prior art, 3G TS 25.433 V3.1.0, Technical 3rd Generation Partnership Project; Specification Group Radio Access Network; UTRAN Iub Interface NBAP Signalling (Release 1999).

Regarding claims 13, 29, 45, Johansson and Nadgauda disclose all the aspects of the claimed invention set forth in the rejection of claims 2, 18, 34, respectively, except fail to explicitly show the capacity indication is included in a 3GPP "Resource Status Indication" message. However, the admitted prior art, the 3GPP technical specification 3G TS 25.433 V3.1.0 discloses that Node B reports resource capabilities by sending a Resource Status Indication message to the CRNC (see section 8.2.15.2, Fig. 21). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the resource size determination by spreading codes of Johansson and Nadagauda with the 3GPP technical specification 3G TS 25.433 V3.1.0 such that the resource size is indicated in a 3GPP "Resource Status Indication" message. The motivation to do so is to conform with the 3GPP standard of using the Resource Status Indication message when reporting resource sizes to the base station controller.

Regarding claims 14-15, 30-31, 46-47, Johansson and Nadgauda disclose all the aspects of the claimed invention set forth in the rejection of claims 2, 18, 34, respectively, except fail to disclose the capacity indication is included in a message which is distinct from a 3GPP "Resource Status Indication" message. However, the admitted prior art, the 3GPP technical

specification 3G TS 25.433 V3.1.0 discloses that Audit Response message (see section 9.1.16) can be used to indicate resource capacity. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the resource size determination by spreading codes of Johansson and Nadagauda with the teaching of the 3GPP technical specification 3G TS 25.433 V3.1.0 such that the resource size is indicated in an AUDIT Response message. The motivation to do so is to conform with the 3GPP standard of using the another message other than the 3GPP Resource Indication Status message when reporting resource sizes to the base station controller.

Response to Arguments

6. Applicant's arguments with respect to claims 2-4, 13-16, 18-20, 24-27, 29-32, 34-36, 40-43, 45-48 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

7. Claims 5, 12, 21, 28, 37, 44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 6, 22, 38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and the claim objections described above are overcome.

Claims 7, 23, 39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and the claim objections described above are overcome.

The following is a statement of reasons for the indication of allowable subject matter:

Claims 5, 21, 37, the capacity value is determined at least in part using the following expression:

$$F = \sum_{sf}^{all\ SF} W_{sf} \bullet A_{sf} \bullet C_{sf}$$

wherein:

F = free resources;

W_{sf} = a weighting factor for spreading factor sf,

A_{sf} = number of connections that can be added with spreading factor sf,

C_{sf} = consumption for spreading factor sf according to reported consumption law.

Claims 12, 28 & 44, in lines 1-2 respectively, the apparatus of claims 11, 27 & 43, respectively, wherein the combination is a weighted combination.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure with respect to resource capacity reporting to a control node of a radio access network.

US Publication 2002/0049062 to Petersen et al.

US Publication 2003/0189900 to Herrmann et al.

US Patent 6,738,634 to Shin

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Mew whose telephone number is 571-272-3141. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 571-272-3134. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KDM
Art Unit 2664

A handwritten signature in black ink, appearing to be 'Kevin Mew', with a long horizontal flourish extending to the right.